

New species and new records of Australian Pseudomorphae.
6th Supplement to the
“Revision of the Pseudomorphae of the Australian Region.”

(Insecta, Coleoptera, Carabidae)

Martin Baehr

Baehr, M. (2005): New species and new records of Australian Pseudomorphae. 6th Supplement to the “Revision of the Pseudomorphae of the Australian Region.” (Insecta, Coleoptera, Carabidae). – Spixiana 28/3: 259–269

As a further supplement to the general revision of the Australian-New Guinean carabid subfamily Pseudomorphae two new species are described which belong to a new species-group each within their genera: *Sphallomorpha plagiata* from central eastern New South Wales and *Adelotopus pulleni* from eastern South Australia. Of *Sphallomorpha multipunctata* Baehr, *S. sculpturata* Baehr, and *Adelotopus atrofus* Baehr the yet unknown males are described and their genitalia figured, of *Sphallomorpha labralis* Baehr the unknown female. Some new locality records of hitherto rare species are noted.

Martin Baehr, Zoologische Staatssammlung, Münchhausenstr. 21, D-81247 München, Germany; e-mail: martin.baehr@zsm.mwn.de

Introduction

During a recent visit at the Australian National Insect Collection at CSIRO, Canberra (ANIC), I sorted out and identified a number of pseudomorphine specimens that were recently collected by various collectors and therefore were not included in my pseudomorphine revisions. This sample includes new species, additional new records, and also allow the description of the genitalia of the odd sex of some species that were so far known only from one sex. A specimen collected by me in 2001 but not yet identified now turned out to represent the unknown male of another species. Thus, this paper is regarded a further supplement to my general revision of the Australian-Oriental species of the carabid subfamily Pseudomorphae (Baehr 1992, 1993a,b, 1994b, 1997, 2002, 2004).

Pseudomorphae is a subfamily of strange looking dytisciform or scolytiiform carabid beetles of still doubtful relationships which are mainly distributed throughout Australia, but also occur in New Guin-

ea, the southern part of the Oriental region, South Africa, and South and Central America including the southern margin of North America. At the present state of knowledge, the subfamily includes six genera of which *Sphallomorpha* Westwood and *Adelotopus* Hope are the largest. Certainly Australia at present is the centre of diversity of the subfamily, because all six genera occur there and almost 90 percent of the recorded species are Australian. Even when the place of origin of Pseudomorphae is not finally settled, the main taxonomic radiation and further evolution of the subfamily certainly occurred in Australia, where the most plesiotypic genus *Pseudomorpha* Kirby occurs as well as highly evolved genera like *Adelotopus* Hope, *Cainogenion* Notman, and *Paussotropus* Waterhouse. Only the quite aberrant genus *Cryptocephalomorpha* Ritsema seems to have evolved in South Africa or that part of the former supercontinent Gondwanaland from which southern Africa originated. So, in general, Pseudomorphae is a striking example for a group of southern, “Gondwanaland” origin.

Additional information about relationships of the whole group and of the genera, as well as about distribution, biogeography, and habits can be obtained from the comprehensive papers of Baehr (1992, 1994a, 1997, 2002). In these revisions a number of species-groups were erected within the genera *Sphallomorpha* and *Adelotopus* that confidently represent monophyletic units. Due to certain special characters that do not occur together in any other species of *Sphallomorpha* and *Adelotopus*, respectively, separate new species-groups are erected for both new species described in the present paper and are characterized below. Although in *Sphallomorpha plagiata* male genitalia are not yet recorded, the character states mentioned in the diagnosis sufficiently characterize the species and species-group to be described.

Material and Methods

Measurements were taken using a stereo microscope using an ocular micrometer and in the same manner as specified in the revision (Baehr 1992). It should be noted again, however, that length has been measured from apex of labrum to apex of elytra, and length of pronotum was taken along midline.

The habitus photograph was obtained by a digital camera using SPOT Advanced for Windows 3.5 and subsequently was worked with Corel Photo Paint 10.

The holotypes of the new species and most of the material mentioned are stored in Australian National Insect Collection (ANIC), some specimens in the Working Collection M. Baehr at Zoologische Staatssammlung, München (CBM).

As stated in the revision, in the genus *Sphallomorpha* chetotaxy offers very important characters not only distinctive for species but also for the species-groups which have been erected in the revision for postulated monophyletic units. Therefore the important fixed setae are enumerated in the description, and to maintain a comparable style of description, these are abbreviated in the following order:

supraorb	supraorbital seta (either side)
preorb	preorbital seta (either side)
clyp	clypeal seta (either side)
labr	labral setae (common)
ment.med	medial mental setae, at base of mental excision or tooth (common)
ment.lat	lateral mental setae, on wings of mentum (either side)
gloss	glossal setae, on ventral rim of apex of glossa (either side)
gular	gular setae, inside of gular suture (either side)
postorb	postorbital setae, posteriorly of eye on a conspicuous rim (either side)
suborb	suborbital setae, below eye, laterally of gular suture (either side)

pron.ant	anterior pronotal setae, near anterior angle of pronotum (either side)
pron.post	posterior pronotal setae, near posterior angle of pronotum (either side)
proeps	proepisternal setae, longitudinally and transversally on proepisternum (either side)
marg	marginal setae, along margin of elytra (either side)
st VI	setae on posterior border of sternum VI, the penultimate visible sternite (either side)
♂ st VII	setae of male sternum VII, the terminal visible sternite (either side)
♀ st VII	setae of female sternum VII, the terminal visible sternite (either side)

Pseudomorpha insignis insignis (Sloane)

Sloane, 1910: 405; Baehr 1997: 44.

Note. The nominate subspecies of this rare species was so far known only from very few specimens collected in northwestern Victoria. The new record now extends the range into adjacent South Australia, and it may also demonstrate why this species is so rare: The small series was sampled in Malaise traps which means that the specimens were caught during flight. Even with the new record, therefore, the habits of this species still remain unknown apart from that it flies and also very rarely comes to light.

New record (6 ex.). Brookfield Con. Pk., SA, 34.21S, 139.31E, 20.Oct.-3.Nov.1991 and 2.Dec.91-2.Jan.1992, E. Edwards, S. Shattuck and J. Stalman, S. Williams (ANIC, CBM).

Sphallomorpha sculpturata Baehr

Figs 1a-f

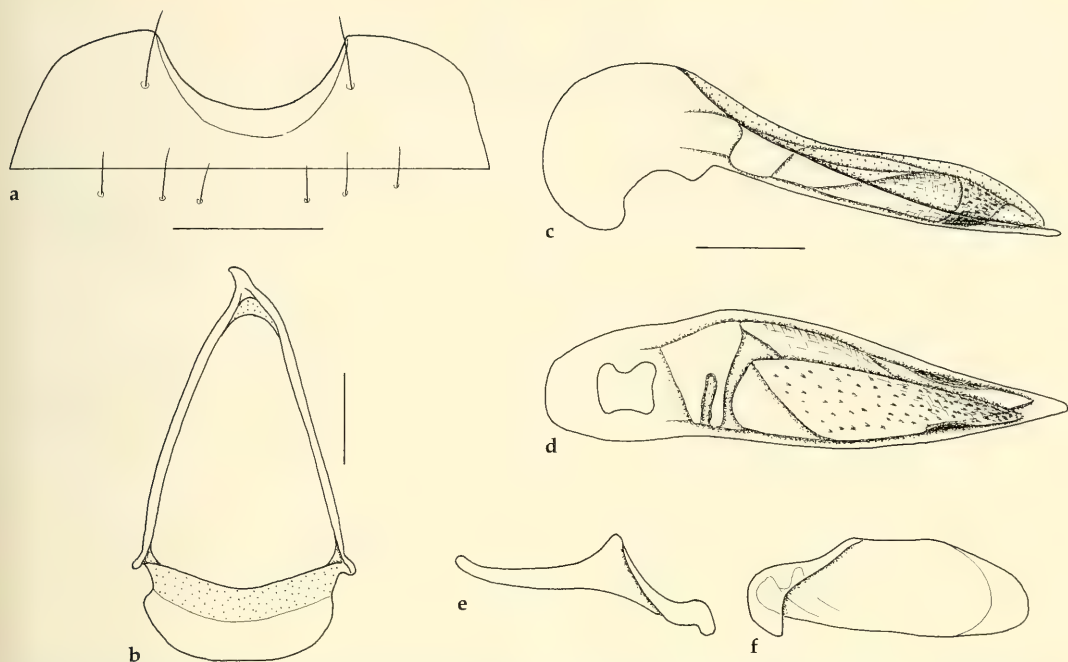
Baehr, 1992: 152.

Note. This species was so far known only from two females, therefore the group affiliation was only tentatively. Because in the *semistriata*-group in the sense of Baehr (1992) the male genitalia are in particular important for species differentiation, these are described below.

Supplementary description

Chetotaxy. ♂ st VII: 1.

Male genitalia (Figs 1a-f). Sternum VII moderately wide, with very deep excision and a single seta on either side. Genital ring moderately wide, almost regularly triangular, basal margin feebly convex, lateral angles prominent, lateral border with distinct incision below base of arms, basal plate very wide,



Figs 1a-f. *Sphallomorpha sculpturata* Baehr. Male genitalia. **a.** δ sternum VII. **b.** δ genital ring. **c.** Lateral view of aedeagus. **d.** Lower surface of aedeagus. **e.** Right paramere. **f.** Left paramere. Scales: a: 1 mm; b-f: 0.5 mm.

anteriorly widely, triangularly excised, arms almost straight, apex very narrow. Aedeagus depressed, tapering towards apex, slightly sinuate laterally in apical half, lower border very gently convex, apex narrow, rather acute, feebly curved up. Orifice very elongate. Internal sac at bottom rather microtrichiate, in apical part laterally and ventrally darker than rest, for pattern see figs 1c, d. Both parameres very elongate, right one also with very elongate, attenuate and remarkably upturned apex. Left paramere rather narrow and elongate, widely rounded at apex.

New record. 1 δ , Australia, QLD01/28, Davies Ck. NP, 20 km e. Mareeba, 10.4.2001, M. Baehr (CBM).

Remarks. This species is rather easily identified by the very dense and rugose microreticulation of the elytra, the markedly convex intervals that are only developed in the apical two thirds of the elytra, and by the low number of marginal elytral pores (11-13). The single male is slightly smaller than both known females and the intervals are slightly less convex, but I have no doubt that it belongs to this species which is so far known only from Atherton Tableland in northeast Queensland, where the mentioned male specimen was likewise collected. This species differs from all known species of the *semistriata*-group by

the deep excision of male sternum VII and the presence of a single seta only.

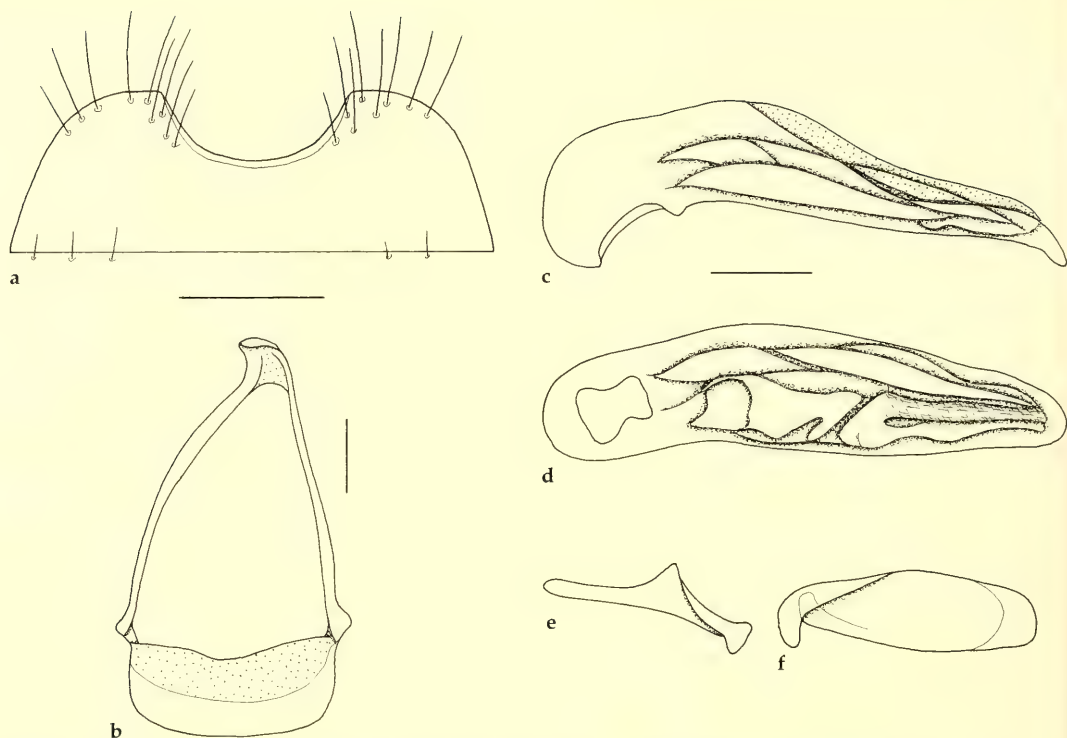
The male specimen was caught from below loose bark of a gum-type eucalypt in open sclerophyll forest.

Recognition. The key to the species in Baehr (1992: pp. 30-51) leads to caption 74 which has to be completed by the following sentence: " δ sternum VII with a single seta only; aedeagus tapering, with acute apex; right paramere with remarkably elongate, upturned apex." Accordingly caption 74 – has to be completed by: " δ sternum VII with at least 3 setae; aedeagus usually less tapering, with rather obtuse apex; right paramere usually with short, rarely elongate, in latter case, apex not upturned."

Sphallomorpha multipunctata Baehr Figs 2a-f

Baehr, 1992: 160.

Note. This species was so far known only from the female. Because in the *ovalis*-group in the sense of Baehr (1992) the male genitalia are in particular important for species differentiation, these are described below.



Figs 2a-f. *Sphallomorpha multipunctata* Baehr. Male genitalia. a. δ sternum VII. b. δ genital ring. c. Lateral view of aedeagus. d. Lower surface of aedeagus. e. Right paramere. f. Left paramere. Scales: a: 1 mm; b-f: 0.5 mm.

Supplementary description

Chetotaxy: δ st VII: 8-9.

Male genitalia (Figs 2a-f). Sternum VII moderately wide, with moderately deep excision and a quite large number of setae on either side. Genital ring wide, triangular, basal margin feebly convex, lateral angles prominent, though rounded, lateral border without incision below base of arms, basal plate very wide, anteriorly widely, triangularly excised, arms gently convex, apex fairly wide. Aedeagus fairly depressed, slightly sinuate laterally in apical half, lower border very gently bisinuate, apex widely rounded, feebly curved down. Orifice very elongate. Internal sac moderately microtrichiate, left part not much darker than rest, for pattern see figs 2c, d. Both parameres very elongate, right one also with very elongate, but not attenuate apex. Left paramere narrow, widely rounded at apex.

New record. 2 $\delta\delta$, 11.45S 142.35E Heathlands, QLD, 15-26 Jan 1992, T. A. Weir, I. D. Naumann at light (ANIC, CBM).

Remarks. Because thus far only females were known from this species, its status was somewhat uncertain.

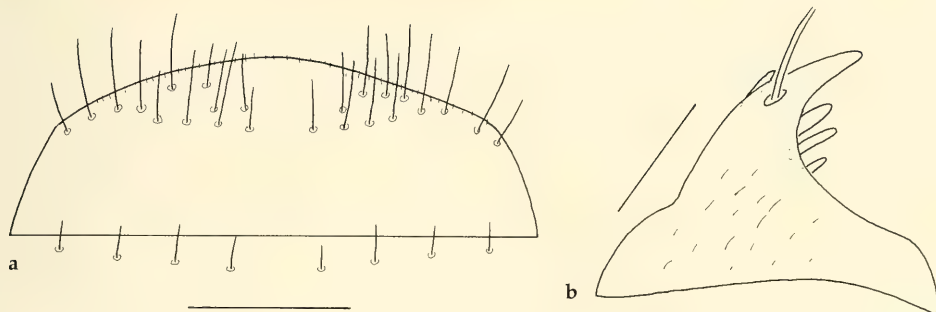
The male genitalia now corroborate it as a separate species close to *S. polita* (Macleay), but with different aedeagus and less numerous setae on sternum VII in both sexes. The new record is well within the recorded range.

Recognition. The key to the species in Baehr (1992: pp. 30-51) leads to caption 82 which has to be completed by the following sentence: "right paramere with very elongate, but not attenuate apex". Accordingly caption 82 – has to be completed by: "right paramere with shorter, rarely elongate apex, in latter case apex attenuate."

Sphallomorpha labralis Baehr Figs 3a,b

Baehr, 1992: 174.

Note. This species was so far known only from males. Because female stylomeres, but also the terminal sternite are of some importance for species differentiation, these are described and figured below.



Figs 3a,b. *Sphallomorpha labralis* Baehr. Female genitalia. **a.** ♀ sternum VII. **b.** stylomere 2. Scales: a: 1 mm; b: 0.5 mm.

Supplementary description

Chetotaxy. ♀ st VII: 12-13.

Female genitalia (Figs 3a,b). Sternum VII wide, apical border gently convex, with many elongate setae arranged in 2-3 rows, and with several short hairs along margin. Stylomere 2 short and wide, apex rather elongate and acute, with 3 short **ves** of different size and shape, with a short **des** and with 2 elongate nematiform setae arising from a groove far below apex.

New record. 1♀, 11.45S 142.35E Heathlands, QLD, 15-26 Jan 1992, T. A. Weir, I. D. Naumann at light (ANIC).

Remarks. This species is easily distinguished from all other Australian species of the *ovalis*-group in the sense of Baehr (1992) by the bisinuate, medially protruded apical margin of the labrum. It occurs in northernmost Queensland right up to the tip of Cape York Peninsula, where the mentioned female specimen was caught.

Recognition. The key to the species in Baehr (1992: pp. 30-51) leads to caption 89 which has to be completed by the following sentence: "♀ sternum VII 12-13 setae." Accordingly caption 89 – has to be changed to: "♀ sternum VII with 9-12 setae."

plagiata-group

Diagnosis. Rather small, wide, moderately convex species with a very large, anteriorly convex, yellow sutural spot; elytral striae absent; supraorbital and preorbital setae present; labrum wide, anteriorly straight, symmetric, 4-setose; mental tooth absent, though with rather well developed, apically transverse prominence; mental setae present; gular sutures almost evenly curved; 2 gular setae present; glossa deeply excavate, 7-8-setose; galea narrow, attenuate; palpi and antenna rather short; eyes de-

pressed; basal angles of pronotum obtusely rounded; prosternal process with 4 elongate setae; elytra with 11-12 marginal setae; ♀ sternum VII wide, 4-5-setose; stylomere 2 very short with rather elongate apex, with 2 dorsal nematiform setae, one stout dorso-median ensiform seta, and 3 stout latero-ventral ensiform setae of different shape; base of stylomere 2 not concealed. Male genitalia so far unknown.

Distribution. A single species recorded from central eastern New South Wales.

Relationships. According to the combination of characters, in particular chetotaxy of head and shape of female sternum VII, the systematic position of this species-group probably is near the *wilgae*- and *centroplagiata*-groups of the revision (Baehr 1992), though the exact position will remain doubtful, until the male genitalia have been examined.

Sphallomorpha plagiata, spec. nov.

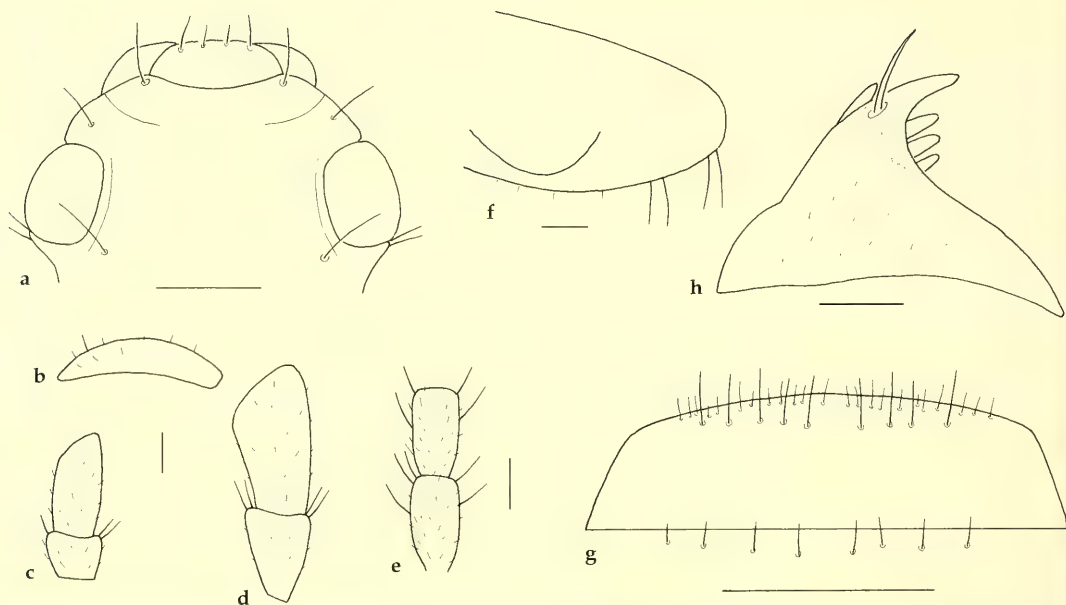
Figs 4a-k, 7

Types. Holotype: ♀, Starr's Ck Lansdowne SF NSW 23 XII 90 / S. G. Watkins Collection Donated 2001 (ANIC).

Diagnosis. Recognized by the combination of a very large, anteriorly convex, light elytral spot, comparatively small body size, presence of supraorbital and preorbital setae but absence of posterior pronotal seta, presence of but two gular setae on either side, and wide and at apex little convex female sternum VII.

Description

Measurements. Length: 7.1 mm; width: 3.7 mm. Ratios: Width pronotum/head: 1.77; width elytra/pronotum: 1.06; width/length of pronotum: 2.46;



Figs 4a-h. *Spalliomorpha plagiata*, spec. nov. Details of head, prosternum, and female genitalia. **a.** Dorsal surface of head. **b.** Galea. **c.** Terminal palpomeres of labial palpus. **d.** Terminal palpomeres of maxillary palpus. **e.** 5th and 6th antennomeres. **f.** Prosternal process. **g.** ♀ sternum VII. **h.** stylomere 2. Scales: a,g: 0.5 mm; b-g: 0.1 mm, h: 0.25 mm.

length/width of elytra: 1.23; length elytra/pronotum: 3.20.

Colour (Fig. 7). Upper surface of head and elytra dark piceous, of pronotum slightly lighter. Lower surface reddish to reddish-piceous, head laterally darker. Apical margin of clypeus and lateral borders of pronotum and elytra ill delimited reddish. Labrum, mandibles, palpi, lower mouth parts, antennae, and scutellum light reddish. Elytra with very large, cordiform though elongate light reddish sutural spot that occupies most of elytra. Femora light reddish, tibiae and tarsi slightly darker.

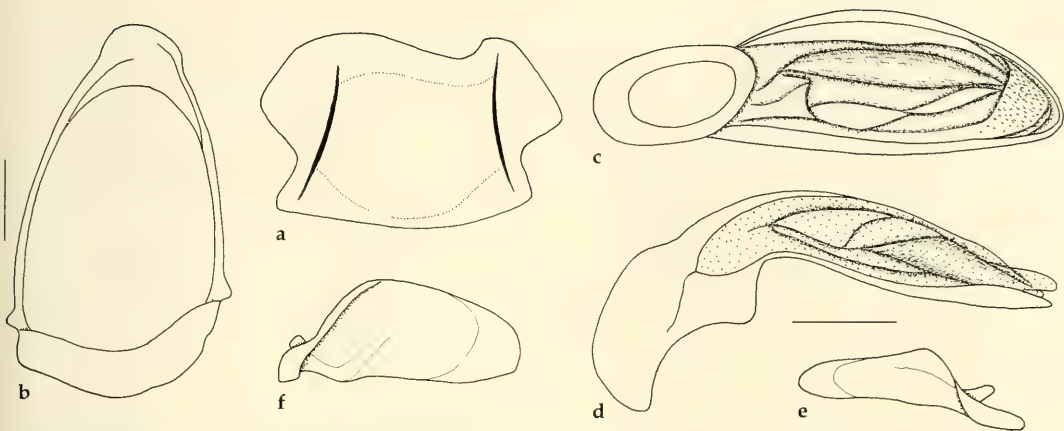
Chetotaxy (Figs 4a,g). Supraorb: 1; preorb: 1; clyp: 1; labr: 4; ment.med: 2; ment.lat: 3-4 short; gloss: 7-8; gul: 2; postorb: 2; suborb: 5-6; pron.ant: 1 short; pron.post: –; proeps: 3; marg: 11-12; st VI: 3-4; ♂ st VII: ?; ♀ st VII: 4-5.

Head (Figs 4a-e). Moderately wide, rather short, convex, frontal impressions absent. Clypeus moderately concave, clypeal sutures feebly impressed, rather indistinct, incomplete. Lateral border of head convex, very slightly incurved in front of eyes, eyes slightly produced over outline of head. Labrum moderately transverse, slightly convex in middle, symmetric, laterally obliquely convex. Mentum with distinct, at apex transverse prominence. Wings of mentum short, wide, apex evenly rounded, subapically slightly convex, medially almost straight. Apex

of glossa rather deeply excised, border moderately sharp. Dorsal part much surpassing ventral part, deeply sinuate in middle, laterally convex, with some minute hairs. Terminal labial palpomere rather elongate, not securiform, terminal maxillary palpomere fairly small, short, attenuate. Galea attenuate. Median antennomeres c. 1.8× as long as wide. Microreticulation of surface fine, distinct though in middle somewhat superficial, isodiametric. Surface with relatively dense, moderately fine punctures, impilose, moderately dull. Palpi sparsely pilose. Galea with few short hairs on anterior border. Gula with scattered short hairs.

Pronotum (Fig. 7). Rather wide, dorsally moderately convex. Apex deeply excised, excision straight. Anterior angles prominent, acute. Sides evenly, though moderately convex, widest immediately at posterior angles. Base very gently bisinuate, rather incurved to the obtuse though quite marked basal angles. Lateral margins with very fine border line. Discal impressions extremely shallow, circular, difficult to detect. Microreticulation fine though distinct, consisting of isodiametric meshes. Punctuation rather dense, fine, surface without pilosity, moderately dull.

Elytra (Fig. 7). Fairly wide, moderately elongate, fairly convex, laterally very gently rounded, widest slightly behind humeri. Apex wide, gently oblique.



Figs 5a-f. *Adelotopus atrorufus* Baehr. Male genitalia. **a.** ♂ sternum VII. **b.** ♂ genital ring. **c.** Lower surface of aedeagus. **d.** Lateral view of aedeagus. **e.** Right paramere. **f.** Left paramere. Scales: 0.25 mm.

Inner four striae very vaguely indicated, at least in basal half, outer striae barely visible. Intervals absolutely depressed. Series of marginal pores slightly spaced in middle. Microreticulation distinct though somewhat superficial, consisting of isodiametric to slightly transverse meshes. Surface with moderately dense, fairly coarse punctures, moderately glossy. Posterior wings present.

Lower surface (Fig. 4f). Prosternal process moderately elongate, wide, apex convex, rounded to ventral surface, with two terminal and two subterminal setae on surface. Metepisternum c. 1.5× as long as wide.

Legs. Moderately elongate. Metatarsus slightly shorter than metatibia. Tarsi sparsely pilose. Basal tarsomere of metatarsus about as long as 2nd and 3rd tarsomeres together.

Male genitalia. Unknown.

Female genitalia (Figs 4g,h). Sternum VII short and wide, apical border but very gently convex, with 4-5 elongate setae and a fringe of relatively elongate hairs along and near border. Stylomere 2 rather short and wide, with fairly short though acute apex, with 3 stout **ves** situated close to apex, with an elongate **des** and with 2 elongate nematiform setae arising from a groove far below apex.

Variation. Unknown.

Distribution. Central eastern New South Wales. Known only from type locality.

Collecting circumstances. Unrecorded. Certainly this is a corticolous species, though it is unknown, in which sort of habitat it occurs, either rain forest or open sclerophyll forest.

Etymology. The name refers to the large, conspicuous, light spot on the elytra.

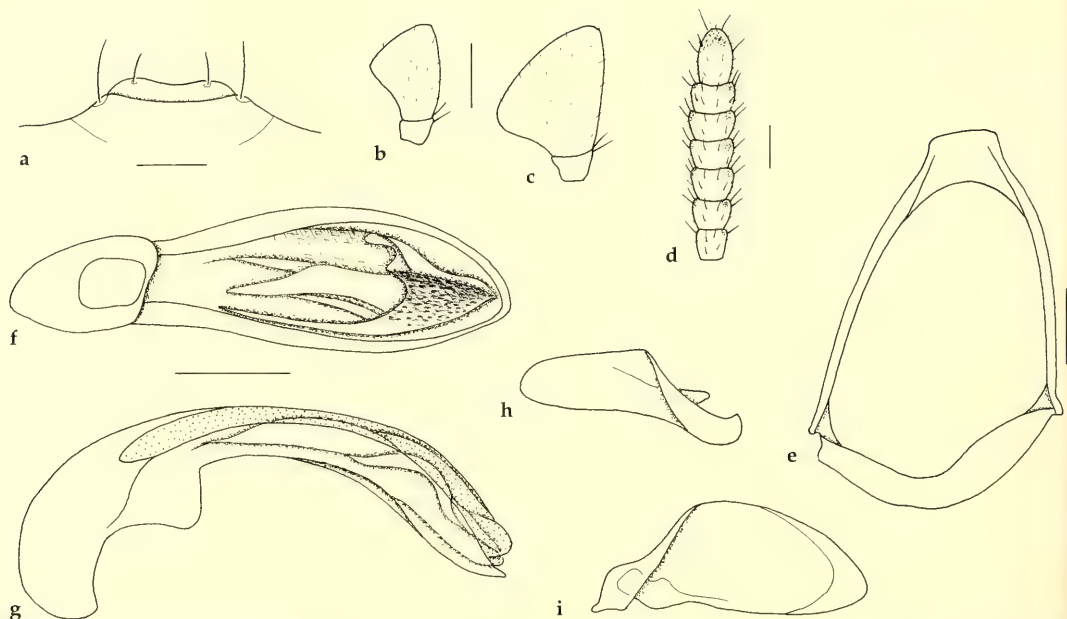
Recognition. The key to the species-groups in Baehr (1992: pp. 25-29) easily leads to caption 44 – from where the key does not work properly, because chetotaxy of prosternal process and of head in the *plagiata*-group does not fit the key, and, obviously, the elytral pattern is unique.

When using the key to the species (Baehr 1992: pp. 30-51), caption 165 is easily reached from where the key does not work further properly, because chetotaxy of prosternal process and of head in *S. plagiata* does not fit the key, and, obviously, the elytral pattern is unique. From here, comparison of the characters of chetotaxy and elytral pattern used in the key with those of *S. plagiata* will demonstrate its unique status.

Adelotopus atrorufus Baehr Figs 5a-f

Baehr, 1997: 122.

Note. This attractive species was so far known only from the female holotype that was collected in southwestern New South Wales. During a faunistic survey conducted by staff of ANIC at Calperum Homestead near Renmark in eastern South Australia a fine series of 8 specimens was captured that includes some males. Thus, the male genitalia can be now described and figured for the first time. All specimens apparently were captured in flight intercept traps.



Figs 6a-i. *Adelotopus pulleni*, spec. nov. Details of head and male genitalia. **a.** Labrum. **b.** Lower surface of terminal palpomer of maxillary palpus. **c.** Lower surface of terminal palpomer of labial palpus. **d.** 5th-11th antennomeres. **e.** ♂ genital ring. **f.** Lower surface of aedeagus. **g.** Lateral view of aedeagus. **h.** Right paramere. **i.** Left paramere. Scales: a,e-i: 0.25 mm, b-d: 0.1 mm.

Supplementary description

Male genitalia (Figs 5a-f). Genital ring short and wide, convex, slightly asymmetric, with short, wide, apex, and with slightly asymmetric, rather short, fairly excised base. Sternum VII rather wide, apically convex, with moderately deep excision, base gently convex, basal angles obtusely rounded, lateral parts fairly elongate. Aedeagus short and wide, fairly depressed, in middle rather widened, moderately asymmetric, left side convex, right side almost straight. Basal part long, moderately bent. Lower surface gently convex, not striate. Apex wide, evenly rounded off, slightly asymmetric. Orifice very elongate, internal sac complexly folded, with a distinct oblique fold near apex. Both parameres large, elongate, right comparatively narrow, with rounded apex, left paramere considerably larger than right, somewhat tapering towards apex, apex widely rounded.

Distribution. Southwestern New South Wales, adjacent eastern South Australia, perhaps also in adjacent northwestern Victoria. This is probably a species of semiarid country.

New record (8 ex.). Calperum HS, 32 km NNW Renmark, SA, 33.53S 140.44.E, 9.11.1995-25.1.1996, K. Pullen (ANIC, CBM).

pulleni-group

Diagnosis. Medium-sized, rather convex, uniformly black species. Labrum bisetose; glossa c. 10-setose; lateral margin of pronotum slightly explanate, basal angle obtusely angulate; basal border line of elytra abbreviated, about as long as half of base; scutellar pore absent; lateral margin of elytra without elongate setae behind shoulders; series of lateral pores with 6 subhumeral pores only; surface of elytra densely microreticulate; abdominal sterna without ambulatory seta each side; sternum VI unknown; tibiae, especially metatibia depressed; mesofemur and metafemur rather wide and depressed, profemur less wide; aedeagus very strongly curved and with remarkably large sclerotized lateral margins, therefore orificium narrowed towards base; internal sac of aedeagus complexly folded, with oblique fold near apex.

Larvae. Unknown.

Distribution. So far a single species recorded: *A. pulleni*, spec. nov. from eastern central New South Wales.

Relationships. This species does not fit into one of the species-groups described by Baehr (1997), but is probably nearest related to the *brevipennis*-group,

mainly because of the abbreviated basal margin, the distinct microreticulation, and the number and arrangement of the marginal pores of the elytra, though shape and structure of aedeagus is quite different.

Adelotopus pulleni, spec. nov.

Figs 6a-i, 8

Types. Holotype: ♂, 33.31S 140.24E SA. 79 km NNW Renmark, 6 Sept.-12 Oct. 1995, Flight intercept/pitfall trap, K. R. Pullen / Calperum Station/Bookmark Biosphere Reserve Invertebrate Survey (ANIC).

Diagnosis. As for species-group.

Description

Measurements (because the elytra are spread, measurements and ratios related to elytra are somewhat arbitrary). Length: 6.1 mm; width: c. 3.0 mm. Ratios: Width/length of pronotum: 1.55; width base/apex of pronotum: 1.41; width pronotum/head: 1.52; length/width of elytra: c. 1.35; length elytra/pronotum: 2.66.

Colour. Upper and lower surfaces, including labrum, mandible and palpi deep black. Antennae basally dark reddish, piceous in apical half. Legs piceous, femora basally even darkened.

Head (Figs 6a-d). Short and rather wide, moderately depressed. Anterior border gently convex, lateral angle widely rounded off, laterally slightly projecting, lateral borders oblique. Clypeal suture semicircular, highly superficial, in middle widely interrupted. Labrum narrow, apex concave. Antennal groove laterally sharply bordered, latero-posteriorly with carinate area. Mental tooth triangular, rather short, apex acute. Wings of mentum wide, laterally rounded, apex rectangular. Glossa wide, tongue-like, apically widely rounded, ventrally with distinct keel, at border with c. 10 elongate setae and additional pilosity on upper and lower surface and along border. Terminal palpomere of maxillary palpus moderately wide, slightly securiform. Terminal palpomere of labial palpus very wide, markedly securiform. Antenna short, 8th-9th antennomeres $>1.5\times$ as wide as long. Microreticulation of surface fine, though dense and distinct, regular, punctuation barely recognizable, surface with a shallow sulcus medially of eyes only, apparently impilose, very smooth, though fairly dull. Ventrolaterally of eyes with a row of short setae. Suborbital field at least laterally faintly punctate and setose. Both palpi rather sparsely setose, gula almost asetose.

Pronotum (Fig. 8). Moderately wide, convex, base comparatively narrow. Apical angles moder-



Fig. 7. Habitus of *Spallomorpha plagiata*, spec. nov. Length: 7.1 mm.

ately produced, fairly acute, slightly surpassing posterior border of eyes. Apex rather deeply, rectangularly excised, rather convex in excision, finely bordered. Sides curved throughout, widest in basal third incurved to base. Margins not bordered, little explanate. Basal angles c. 120° , at apex obtusely rounded, not produced backwards. Base in middle slightly produced, laterally oblique, in middle finely bordered. Surface without any transverse subbasal impression. Microreticulation fine, though distinct, punctuation fine and rather dense, moderately distinct, surface with several short, irregular striae, apparently impilose, rather dull.

Elytra (Fig. 8). Rather elongate, convex throughout, basally almost parallel, then gently narrowed to apex. Apex rather wide, slightly oblique, truncature apparently faintly concave, apical angles rounded off. Shoulders rounded off, basal margin slightly oblique, without setae behind shoulders. Marginal channel very narrow, completely visible from above. Basal border incomplete, reaching only to about middle of base, ending abruptly. Lateral margin asetose. Series of umbilical pores consisting of 6 pores behind shoulder. Setae very short. Striae including sutural stria extremely superficial, indicated

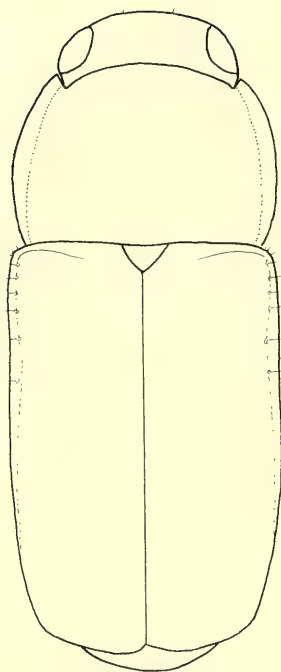


Fig. 8. Outline of *Adelotopus pulleni*, spec. nov. Length: 6.1 mm.

only by series of extremely fine punctures. Microreticulation fine though distinct, irregularly isodiametric, punctuation fine though distinct, rather dense. Surface impilose, moderately dull, somewhat silky.

Lower surface. Prosternal process rather elongate, narrow, straight, anteriorly depressed, laterally strongly bordered, surface behind coxae concave, apex narrow, straight, rectangular, very shortly setose. Metepisternum elongate, c. $2 \times$ as long as wide, posteriorly not constricted nor hollowed. Abdominal sterna with one or two setae near apical border, sternum VI without setae. Lower surface apparently impilose.

Legs. Moderately elongate, 1st tarsomere of protarsus about as long as wide, tibial groove of profemur deep, anterior plate distinctly overlapping the groove for some distance from apex, posterior border of groove sharp. Femur rather wide. Metatibia rather elongate, c. $5 \times$ as long as wide, 1st tarsomere of metatarsus slightly $> 2 \times$ as long as wide. ♂ protarsus barely widened.

Male genitalia (Figs 6e-i). Genital ring short and wide, highly asymmetric, left arm straight, right convex, with rather narrow, asymmetric base and short and wide, at tip transverse apex. Sternum VII partly destroyed, because the specimen apparently was somewhat damaged during capture. Aedeagus

short and wide, fairly depressed, in middle rather widened, slightly asymmetric, left side more convex than right one. Basal part long, moderately bent. Lower surface on basal half remarkably concave, towards apex slightly convex, not striate, but surface in middle concave. Apex wide, evenly rounded off, slightly asymmetric. Sclerotized lateral borders unusually wide. Orifice very elongate, narrowed towards base, internal sac complexly folded, with a distinct oblique fold near apex. Both parameres large, elongate, right comparatively large, with rounded apex, left paramere considerably larger than right, somewhat tapering towards apex, apex obtusely rounded.

Female genitalia. Unknown.

Variation. Unknown.

Distribution. Eastern South Australia. Known only from type locality.

Collecting circumstances. The holotype was captured in a flight intercept trap. Certainly this is a corticolous species that probably lives in semiarid Mallee country.

Etymology. The name honours the collector of this and several other species during the Calperum faunal reserve survey, Kim Pullen, collection manager at ANIC.

Recognition. The key to the species-groups in Baehr (1997: pp. 58-60) leads to caption 27 from where the key does not work properly, because the combination of characters of chetotaxy and microreticulation of elytra is different from those of the *multipunctatus*- and *obsoletus*-groups and, moreover, shape and structure of aedeagus are unique.

When using the key to the species (Baehr 1997: pp. 60-76), caption 89 is reached, but from here the key does not longer work properly, because the combination of characters in *A. pulleni* does not fit in either of both resulting captions.

Adelotopus virgatus Baehr

Baehr, 1997: 225.

Note. This is one of the many extremely similar reddish species that are distributed throughout the arid belt of southern Australia. At Calperum Homestead in eastern South Australia, this species occurs together with the rather common and widespread *A. rubiginosus* Newman and *A. laticollis* Baehr.

New records (2 ex.). SA, 34.00S, 140.47E, 19 km N. Renmark, 14.12.1995-25.1.1996, K. R. Pullen (ANIC); SA, 33.53F, 140.44E, 32 km NNW Renmark, 12.12.1995-25.1.1996, K. R. Pullen (ANIC).

Baehr, 1997: 244.

Note. This species was so far known only from the female holotype that was captured almost hundred years ago in southwestern South Australia. The single specimen from Calperum Homestead likewise is a female that in shape and surface structure is very near to the holotype of *A. ooldeae*. To be sure of the identity, however, males should be sampled at the type locality, because in the very speciose *rubiginosus*-group in the sense of Baehr (1997) male genitalia are the best, in many species the single way for species differentiation. Therefore, the mentioned specimen is only tentatively alluded to *A. ooldeae*.

New records. 1♀, SA, 34.00S, 140.47E, 19 km N. Renmark, 14.12.1995-25.1.1996, K. R. Pullen (ANIC).

Cainogenion glabratum Baehr

Baehr, 1997: 364.

Note. This rare species was so far known only from the female holotype collected probably in 19th Century in a short distance south of Flinders Range, central South Australia. The new record, again a single specimen, was recently collected not far from the first record right within Flinders Range.

New record (1 ex.). ♀, Australia, SA, Brachina Gorge, Flinders Rge., 1.1.2004, M. Baehr (CBM).

Remarks. The single specimen of this apparently very rare species, again a female like the holotype, was collected from under the bark of a large river gum in a Gorge of Flinders Range. According to the available records this species seems to be restricted to a semiarid area in central South Australia within and south to Flinders Range. However, the recent specimen was captured near a small watercourse.

Acknowledgements

I am greatly indebted to Mr. T. A. Weir (Canberra) for the kind loan of many of the examined specimens and the opportunity to search through the large amount of unidentified specimens he cares for in the Australian National Insect Collection.

- Baehr, M. 1992. Revision of the Pseudomorphinae of the Australian Region 1. The previous genera *Sphallomorpha* Westwood and *Silphomorpha* Westwood. Taxonomy, phylogeny, zoogeography (Insecta, Coleoptera, Carabidae). – Spixiana Suppl. **18**: 1-440
- 1993a. New species and new records of the genus *Sphallomorpha* Westwood from Australia. Supplement to the "Revision of the Pseudomorphinae of the Australian Region 1." (Insecta, Coleoptera, Carabidae). – Spixiana **16**: 25-42
- 1993b. A remarkable new species of the genus *Sphallomorpha* Westwood from Irian Jaya (New Guinea). 2. Supplement to the "Revision of the Pseudomorphinae of the Australian Region 1." (Insecta, Coleoptera, Carabidae). – Spixiana **16**: 207-211
- 1994a. Phylogenetic relations and biogeography of the genera of Pseudomorphinae (Coleoptera, Carabidae). In: Desender, K., M. Dufrene, M. Loreau, M. L. Luff & J.-P. Malfait (eds): Carabid Beetles: Ecology and Evolution. – Ser. Entomol. **51**: 11-17. Kluwer, Dordrecht, Boston, London
- 1994b. New species and new records of the genus *Sphallomorpha* Westwood from Australia and New Guinea. 3rd Supplement to the "Revision of the Pseudomorphinae of the Australian Region 1." (Insecta, Coleoptera, Carabidae). – Spixiana **17**: 215-235
- 1997. Revision of the Pseudomorphinae of the Australian Region 2. The genera *Adelotopus* Hope, *Cainogenion* Notman, *Paussotropus* Waterhouse, *Pseudomorpha* Kirby, and *Cryptocephalomorpha* Ritsema. Taxonomy, phylogeny, zoogeography (Insecta, Coleoptera, Carabidae). – Spixiana Suppl. **23**: 1-510
- 2002. New species and new records of Australian Pseudomorphinae. 4th Supplement to the "Revision of the Pseudomorphinae of the Australian Region." (Insecta, Coleoptera, Carabidae). – Spixiana **25**: 101-129
- 2004. A peculiar new species of the genus *Sphallomorpha* Westwood from New Guinea (Coleoptera: Carabidae: Pseudomorphinae). – Koleopt. Rdschau. **74**: 25-31
- Sloane, T. G. 1910. Studies in Australian entomology. No. XVI. New species of Carabidae. – Proc. Linn. Soc. New South Wales **35**: 378-406

Buchbesprechungen

42. Kwet, A.: Reptilien und Amphibien Europas. Kosmos Naturführer. – Franckh-Kosmos Verlags-GmbH & Co. KG, Stuttgart, 2005. 252 S., zahlr. Farbfotos u. Karten. ISBN 3-440-10237-8

Die zahlreichen taxonomischen und nomenklatorischen Veränderungen, welche die Amphibien und Reptilien in den letzten Jahren weltweit erfahren haben, sind auch an der europäischen Amphibien- und Reptilienfauna nicht spurlos vorbeigegangen. So haben sich nicht nur eine ganze Reihe von Gattungsnamen geändert, meist auf Grund genauerer systematischen Forschung, sondern auch zahlreiche Taxa, die früher nur für Unterarten gehalten wurden, sind in den letzten Jahren als eigenständige, wenn auch nah verwandte Arten erkannt worden, wobei die DNS-Analyse in mehreren Fällen eine wichtige Rolle gespielt hat. Diesen Änderungen trägt dieser neue Führer Rechnung, so daß Benutzer älterer, vergleichbarer Bücher wohl in verschiedenen Fällen umlernen müssen.

Dieser Führer verzichtet auf eine Einführung in Körperbau und Lebensweise der Amphibien und Reptilien und will nichts anderes als ein Bestimmungsbuch sein. Einige bestimmungstechnisch wichtige Körpermerkmale sind im vorderen Schutzzumschlag dargestellt, während man Angaben zur Lebensweise bei den einzelnen Arten suchen muß. Ein Bestimmungsbuch ist der Führer auch deshalb, weil er mit einem richtigen Bestimmungsschlüssel für die Ordnungen, Unterordnungen und Gattungen beginnt. Da die Artbestimmung mit Hilfe von Bestimmungsschlüsseln bei beiden Tiergruppen schwierig und ziemlich unanschaulich ist, wurde auf weitergehende Schlüssel verzichtet und dafür treten die großenteils sehr schönen und anschaulichen Farbfotos ein, die, im Verein mit der Beschreibung der äußeren Morphologie, der Verbreitung, und dem Vergleich mit ähnlichen, nicht näher behandelten Arten, nach Ansicht des Rezensenten in den meisten Fällen eine einwandfreie Bestimmung ermöglichen.

In der Tat sind nicht alle Arten abgebildet und beschrieben und es fehlen vor allem sehr kleinräumig verbreitete, äußerlich schwer unterscheidbare Arten, sowie einige, die nur im äußersten Osten, z.B. im Kaukasus und auf einigen griechischen Inseln vorkommen. Diese sind in der Regel unter "Weitere Arten" kurz behandelt. Eine Verbreitungskarte sowie eine kurze Beschreibung des Lebensraumes, vervollständigen die jeweilige Artdiagnose. Eine Liste wichtiger herpetologischer Adressen, der wichtigsten herpetologischen Zeitschriften, eine Auswahl weiterführender Literatur, sowie eine systematische Artenübersicht und ein Register der lateinischen und deutschen Namen machen den Band zu einem sehr gut benutzbaren Bestimmungswerk für die europäische Herpetofauna, zumal er in der bewährten Weise der Kosmos Naturführer farblich gegliedert ist. Für herpetologisch und überhaupt für allgemein biologisch interessierte Europa-Reisende empfehlenswert.

M. Baehr

43. Bezzel, E., I. Geiersberger, G. von Lossow & R. Pfeiffer: Brutvögel in Bayern – Verbreitung 1996 bis 1999. – Verlag Eugen Ulmer KG, Stuttgart, 2005. 555 S., 313 Farbfotos, 374 Verbreitungskarten, 236 Grafiken, 56 Tab. ISBN 3-8001-4762-9

Avifaunen sind Inventare der Vogelwelt eines bestimmten Gebietes in einem bestimmten Zeitraum. Insofern gehören sie zu den wichtigsten Grundlagen für jede Beschäftigung mit der Vogelwelt. Der vor kurzem erschienene bayerische Brutvogelatlas umfasst einen dreijährigen Zeitraum von 1996 bis 1999 und schließt somit an den "Atlas der Brutvögel Bayerns" an, der auf Kartierungen von 1979 bis 1983 beruht. Die Ergebnisse der früheren Kartierung wurden in die aktuellen Verbreitungskarten integriert, so dass ein direkter Vergleich der beiden Kartierungszeiträume möglich ist. So lässt sich bei einigen Arten in dem etwa 15-jährigen Zeitraum zwischen den beiden Kartierungen ein Rückgang der Verbreitung deutlich erkennen, wie z.B. bei einigen Limikolen wie Kiebitz, Großer Brachvogel, und Bekassine, oder bei Singvögeln wie Ortolan und Grauammer. Das Werk umfaßt 187 regelmäßige Brutvögel Bayerns, wobei jede Art mit einem oft exzellenten Farbfoto illustriert wird. Neben einer bayerischen Verbreitungskarte wird auch die Verbreitung in Europa farblich dargestellt, ähnlich wie in gängigen Bestimmungsbüchern. Eine kleine Grafik stellt außerdem die Brutzeit in Bayern dar. Jede Art wird in dem großformatigen Werk auf einer Doppelseite dargestellt, wobei der Arttext neben "Verbreitung", "Lebensraum" und "Bestandsentwicklung" auch einen Abschnitt über "Gefährdung und Schutz" enthält. Bei vielen Arten wird dies durch "Besonderheiten" mit zusätzlichen Informationen zur Art ergänzt, die sich nur schwer in die vorherigen Abschnitte eingliedern ließen. Neben den im Hauptteil behandelten Arten werden 54 Vogelarten ohne Verbreitungskarten kurz vorgestellt, bei denen es sich vor allem um nicht indigene, in Bayern als ausgestorbene, sehr seltene oder zweifelhafte Brutvögel handelt. Kapitel zur Methodik, Taxonomie, Avifaunistik und zur Auswertung der Kartierungsdaten geben eine allgemeine Einführung. Die Verwendung des Superspezies-Konzeptes ist von zweifelhaftem Nutzen in einem Werk, das vor allem für Praktiker und nicht für den taxonomischen Spezialisten gedacht ist. Der auf Ernst Mayr zurückgehende Begriff Superspezies und die Termini Semi- und Allospezies sind, wenn überhaupt, nur bei zoogeographischen Untersuchungen und bei Studien zur Artbildung von Bedeutung. Kapitel über Lebensräume und deren Veränderungen, wichtige Naturräume Bayerns, Bestandsentwicklungen, Gefährdungsursachen, und Vogelschutz runden, jeweils reichlich mit Farbfotos und übersichtlichen Tabellen versehen, das insgesamt positive Bild des Buches ab.

S. Schmidt

A contribution to the knowledge of Dryinidae of the Neotropical and Australian regions

(Insecta, Hymenoptera, Chrysidoidea)

Massimo Olmi

Olmi; M. (2005): A contribution to the knowledge of Dryinidae of the Neotropical and Australian regions (Insecta, Hymenoptera, Chrysidoidea). – Spixiana 28/3: 271-280

Seven new species of Dryinidae are described: *Anteon zurquianum*, from Colombia; *Anteon yanegai*, from Honduras; *Anteon searsi*, *Pseudodryinus papuensis*, *Echthrodelphax guineensis*, from Papua New Guinea; *Dryinus gordli* and *Gonatopus victorien*-*sis*, from Australia. The males of *Anteon ellisense* Olmi from Australia, and *Dryinus gulfensis* Olmi, from Papua New Guinea, are described for the first time.

Prof. Massimo Olmi, Dipartimento di Protezione delle piante, Università della Tuscia, Via S. Camillo de Lellis, I-01100 Viterbo, Italy.

Introduction

The Dryinidae are parasitoids of Homoptera Auchenorrhyncha (Guglielmino & Olmi 1997, Olmi 1984, 1994, 1999a). The species of the Neotropical and Australian regions are insufficiently known. For the Neotropical species the most recent catalogue is that of Olmi, Virla & Fernandez (2000), in addition to two more recent papers (Olmi 2003, 2004). For the Australian species the most recent catalogue is that of Olmi (1984), in addition to a number of more or less large papers published after 1984 in many magazines (Olmi 1986, 1987a, 1987b, 1987c, 1990, 1992a, 1992b, 1993, 1998a, 1998b, 1999b, 2001, 2003, 2004).

In recent years new investigations in Colombia, Honduras, Australia, and Papua New Guinea resulted in the discovery of seven new species that are described below. In addition, the males of two species previously known only as females are described. The descriptions follow the terminology used by Olmi (1984, 1994, 1999a). The measurements are relative, except for the total length (head to abdominal tip, without antennae), which is expressed in millimetres.

In the descriptions POL is the distance between the inner edges of the two lateral ocelli; OL is the distance between the inner edges of a lateral ocellus and the median ocellus; OOL is the distance from the outer edge of a lateral ocellus to the compound eye; OPL is the distance from the posterior edge of a lateral ocellus to the occipital carina; TL is the distance from the posterior edge of an eye to the occipital carina.

The study techniques were those proposed by Olmi (1984).

The material studied in this paper is deposited in the following collections: DA: Department of Entomology, University of California, Davis, California, U.S.A.; OL: Massimo Olmi's collection, c/o Department of Plant Protection, University of Tuscia, Viterbo, Italy; TG: U.W. Insect Museum, University of Wyoming, Laramie, Wyoming, U.S.A.; TL: Department of Entomology, University of California, Riverside, California, U.S.A.

Subfamily Anteoninae

Anteon zurquianum, spec. nov.

Fig. 1A

Types. Holotype: ♀, Costa Rica, San José Prov., Zurquí de Moravia, 1600 m, II.1994, Paul Hanson coll. (TG).

Description

♀. Fully winged; length 2.50 mm.

Head black, with mandibles and part of clypeus testaceous; antennae testaceous; mesosoma black; gaster brown; legs testaceous.

Antennae clavate; antennal segments in the following proportions: 11:5:9:8:7:7:6.5:6.5:6.5:9; head completely granulated; frons without lateral longitudinal keels along the orbits and directed towards the antennal toruli; frontal line incomplete, only present in front of the anterior ocellus; occipital carina complete; POL=4; OL=2; OOL=5; OPL=3; TL=4.

Pronotum with posterior surface dull, hairy, reticulate rugose; posterior surface of pronotum short and transverse, much shorter than scutum (6:15), much broader than long; pronotal tubercles reaching the tegulae; scutum dull, smooth, slightly granulated, with a few striae near the parapsidal furrows; notauli incomplete, reaching approximately 0.20 length of scutum; scutellum and metanotum shiny, smooth, without sculpture; propodeum reticulate rugose, with a strong transverse keel between dorsal and posterior surface; posterior surface of propodeum with two longitudinal keels, with median area as rugose as lateral areas.

Forewing with a slight dark transverse band beneath the pterostigma; distal part of stigmal vein much shorter than proximal part (4:11).

Protarsus with the following proportions of tarsomeres: 9:2:3:7:16; tarsomere 5 of protarsus (Fig. 1A) with basal part much shorter than distal part (55:95); enlarged claw (Fig. 1A) with a proximal prominence bearing a long bristle; segment 5 of front tarsus (Fig. 1A) with 2 rows of approximately 48 lamellae; distal apex with a group of approximately 4 lamellae; tibial spurs 1,1,2.

♂ unknown.

Remarks. *Anteon zurquianum* resembles *A. evansi* Olmi, 1987, described from Jamaica. From this species it may be distinguished by the different length of the notauli (they reach 0.75 length of scutum in *A. evansi* and 0.20 length of scutum in *A. zurquianum*) and the length of the frontal line (it is complete in *A. evansi* and incomplete and only present in front of the anterior ocellus in *A. zurquianum*).

Anteon yanegai, spec. nov.

Fig. 1B

Types. Holotype: ♀, Honduras, Olancho Dept., La Murralla Nat. Park, 15°05.49'N 86°44.17'W, 1480 m, 4-7.VII.2002, D. Yanega coll. (TL). – Paratypes: 3♀, same locality label (TL); 1♀, same locality label (OL).

Description

♀. Fully winged; length 2.56-3.31 mm (holotype 3.31 mm).

Head black, with mandibles testaceous; antennae testaceous, with segments 7-10 slightly darkened; mesosoma black; gaster testaceous-brown; legs testaceous.

Antennae clavate; antennal segments in the following proportions: 13:7:9:9:8:7.5:8:8:8:11; head completely granulated and sculptured by many irregular longitudinal keels; frons and vertex partly reticulate rugose; frons without lateral longitudinal keels along the orbits and directed towards the antennal toruli; frontal line complete; occipital carina complete; POL=7; OL=4.5; OOL=7; OPL=4; TL=5; major diameter of the posterior ocelli: 3.

Pronotum with posterior surface dull, hairy, reticulate rugose, except posterior third smooth, shiny and without sculpture; posterior surface of pronotum longer than half of scutum (11:16) and much broader than long; pronotal tubercles reaching the tegulae; scutum shiny, smooth, finely punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0.30 length of scutum; scutellum shiny, smooth, without sculpture, with a transverse row of punctures parallel and close to the posterior margin; metanotum shiny, smooth, without sculpture, with a rugose median area; propodeum reticulate rugose, with a strong transverse keel between dorsal and posterior surface; posterior surface of propodeum without longitudinal keels, completely reticulate rugose.

Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (4:16).

Protarsus with the following proportions of tarsomeres: 9:3:3.5:9:19; tarsomere 5 of protarsus (Fig. 1B) with basal part large, forming an obtuse angle with the distal part; enlarged claw (Fig. 1B) with a proximal prominence bearing a long bristle; segment 5 of front tarsus (Fig. 1B) with 1 row of 17 long lamellae; distal apex of segment 5 with a group of 3 lamellae; tibial spurs 1,1,2.

♂ unknown.

Remarks. The species is named after the collector of the type material, Dr. Doug Yanega. *Anteon yanegai*

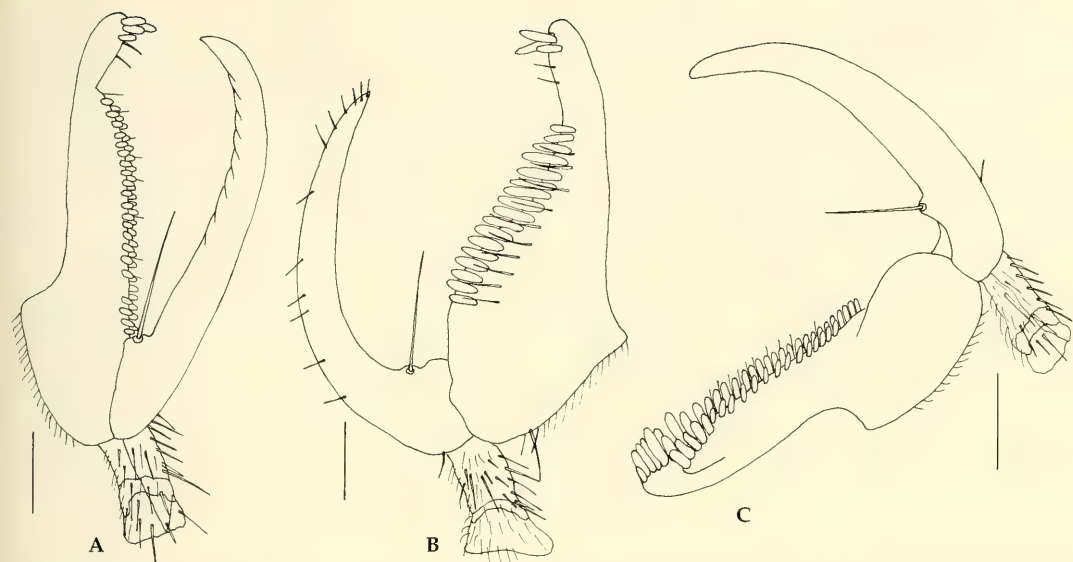


Fig. 1A-C. Chelae. **A.** *Anteon zurquianum*, spec. nov., holotype. **B.** *Anteon yanegai*, spec. nov., holotype. **C.** *Anteon searsi*, spec. nov., holotype. Scale bars: A: 0.07 mm, B: 0.08 mm, C: 0.10 mm.

resembles *A. molle* Olmi, 1984, *A. albitarse* (Cameron, 1888), *A. triste* Olmi, 1990, and *A. parkeri* Olmi, 1998. From these species it may be distinguished by the shape of the tarsomere 5 of protarsus (with basal part very large and forming an obtuse angle with the distal part (Fig. 1B) in *A. yanegai*; with basal part smaller and about parallel to the distal part (Figs 311, 326, 327 in Olmi 1984, fig. 37 in Olmi 1998b) in *A. molle* Olmi, *A. albitarse* (Cameron), *A. triste* Olmi and *A. parkeri* Olmi).

Anteon searsi, spec. nov.

Figs 1C, 2A, 2B

Types. Holotype: ♀, Papua New Guinea, Gulf Prov., Ivimka Research Station, Lakekamu Basin, 07°44'S 146°30'E, 120 m, Malaise trap, 1-6.III.2000, T. Sears coll. (DA). – Paratypes: 1♀, same locality label, 1-5.III.2000, T. Sears coll. (DA); 1♂, same locality label, 2-8.XI.1999, S.L. Heydon, N. Schiff & T. Sears coll. (DA); 1♂, same locality label, 13.IV.2000, T.A. Sears coll. (OL); 1♀, Papua New Guinea, Morobe Prov., Tekadu, 07°38'S 146°34'E, I.2000, T. Sears, binatung brigade, Malaise trap (OL); 1♀, Papua New Guinea, Gulf and Morobe Prov., Lakekamu Basin, XI.1999-IV.2000, T.A. Sears & S.L. Heydon coll. (DA).

Description

♀. Fully winged; length 2.18-3.00 mm (holotype 3.00 mm).

Head black, with mandibles testaceous; antennae testaceous; mesosoma black, with sides of pronotum

brown-testaceous; gaster and legs testaceous.

Antennae clavate; antennal segments of the holotype in the following proportions: 10:5:6.5:6.5:6.5:6:6:5.5:5:8; head convex, dull, covered with short hairs (very dense between the antennal toruli), completely reticulate rugose; frontal line complete; frons with two lateral keels situated around the orbits and directed towards the antennal toruli; occipital carina complete; POL=5; OL=3.5; OOL=3; OPL=4; TL=3; major diameter of the posterior ocelli: 2.5; pronotum hairy, anteriorly crossed by a slight transverse impression, shiny, rugose; posterior surface of pronotum shorter than scutum (8:14), with posterior half smooth and without sculpture; pronotal tubercles reaching the tegulae; scutum smooth, shiny, punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0.3 length of scutum; scutellum and metanotum shiny, smooth, without sculpture; propodeum with a strong transverse keel between dorsal and posterior surface; dorsal surface dull, reticulate rugose; posterior surface of propodeum dull, with two complete longitudinal keels and with median and lateral areas reticulate rugose.

Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (4:11).

Protarsus of the holotype with the following proportions of tarsomeres: 8:2.5:3.5:6.5:18; enlarged claw (Fig. 1C) with a proximal prominence bearing a long bristle; tarsomere 5 of protarsus

(Fig. 1C) with 2 rows of approximately 45 lamellae without interruption until the distal apex, with inner side almost rectilinear and with basal part slightly shorter than distal part (Fig. 1C), distal apex with a deep furrow evident in ventral view (it contains the distal apex of the enlarged claw when the chela is closed) (Fig. 2A); tibial spurs 1, 1, 2.

♂. Fully winged; length 1.68-2.12 mm.

Head black, with mandibles testaceous; antennae brown-testaceous; mesosoma black; gaster brown; legs testaceous.

Antennae filiform, hairy; antennal segments in the following proportions: 6:3.5:5.5:4:4:4.5:4.5:4.5:6.5; head dull, completely reticulate rugose; frontal line complete; frons with two lateral keels situated around the orbits and directed towards the antennal toruli; occipital carina complete; POL=5; OL=3; OOL=4; OPL=2; TL=2; major diameter of the posterior ocelli: 2; scutum, scutellum and metanotum shiny, smooth, finely punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0.4 length of scutum; propodeum with a strong transverse keel between dorsal and posterior surface; dorsal surface of propodeum reticulate rugose; posterior surface of propodeum dull, reticulate rugose, with 2 longitudinal keels and with median area as rugose as lateral areas

Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (1.5:6)

Tibial spurs 1, 1, 2.

Parameres (Fig. 2B) with a very large expansion

Remarks. The species is named after the collector of the holotype, T. Sears. The furrow present at the distal apex of tarsomere 5 of protarsus (Fig. 2A) is also present in the female of the Palaearctic *Anteon pinetellum* De Rond, 1998. The female of *Anteon searsi* resembles those of *A. destructor* (Perkins, 1905) and *A. superbum* Dodd, 1913. From these species it may be distinguished by the shape of the tarsomere 5 of protarsus (with inner side almost rectilinear and basal part slightly shorter than distal part (Fig. 1C) in *A. searsi*; with inner side not rectilinear and basal part much shorter (Fig. 352 in Olmi 1984) or longer than distal part (Fig. 382 in Olmi 1984) in *A. destructor* (Perkins) and *A. superbum* Dodd; with a deep furrow at the distal apex of tarsomere 5 of protarsus in *A. searsi*; without the above furrow in *A. destructor* and *A. superbum*). The male of *Anteon searsi* resembles that of *A. destructor* (Perkins, 1905). From this species it may be distinguished by the shape of the parameres (they are very broad in dorsal view

because of a large lateral expansion (Fig. 2B) present in *A. searsi*; they are less broad in dorsal view because the above expansion is not present or it is very reduced (Figs 353, 354 in Olmi 1984) in *A. destructor*).

Anteon ellisense Olmi

Fig. 2C

Anteon ellisense Olmi, 1999, was described from Australia, NE Queensland, 9.7 Km N Ellis Bay. Only two females of this uncommon species were known. However, in recent years I examined a small series composed of both sexes, so that I can give the following description of the male.

Material examined: 1♀, 2♂♂, Australia, NE Queensland, 3.4 Km S Port Douglas, 17.XI.1979, open forest, E.C. Dahms, J.B. Woolley & J. LaSalle coll. (TL).

Description

♂. Fully winged; length 2.00-2.06 mm.

Head black, with mandibles testaceous; antennae testaceous-darkened, with segments 1-2 testaceous; mesosoma black; gaster brown; legs testaceous.

Antennae filiform, hairy; antennal segments in the following proportions: 7:4:4:4:4:4:4:4:5; head dull, completely granulated and sculptured by slight irregular keels forming slight areolae more visible near the orbits; frontal line complete; frons with two slight lateral keels situated around the orbits and directed towards the antennal toruli; occipital carina complete; POL=6; OL=3; OOL=4; OPL=2; TL=3; major diameter of the posterior ocelli: 2; scutum, scutellum and metanotum shiny, smooth, finely punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0.25 length of scutum; propodeum with a strong transverse keel between dorsal and posterior surface; dorsal surface of propodeum reticulate rugose; posterior surface of propodeum dull, reticulate rugose, with 2 longitudinal keels, with median area as rugose as lateral areas.

Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (2:7).

Tibial spurs 1, 1, 2.

Parameres (Fig. 2C) with an inner medial expansion provided of papillae.

Remarks. The male of *Anteon ellisense* resembles those of *A. destructor* (R. Perkins, 1905) and *A. searsi*, spec. nov. (see the previous description). From these species it may be distinguished by the shape and sculpture of the parameres (with an inner medial

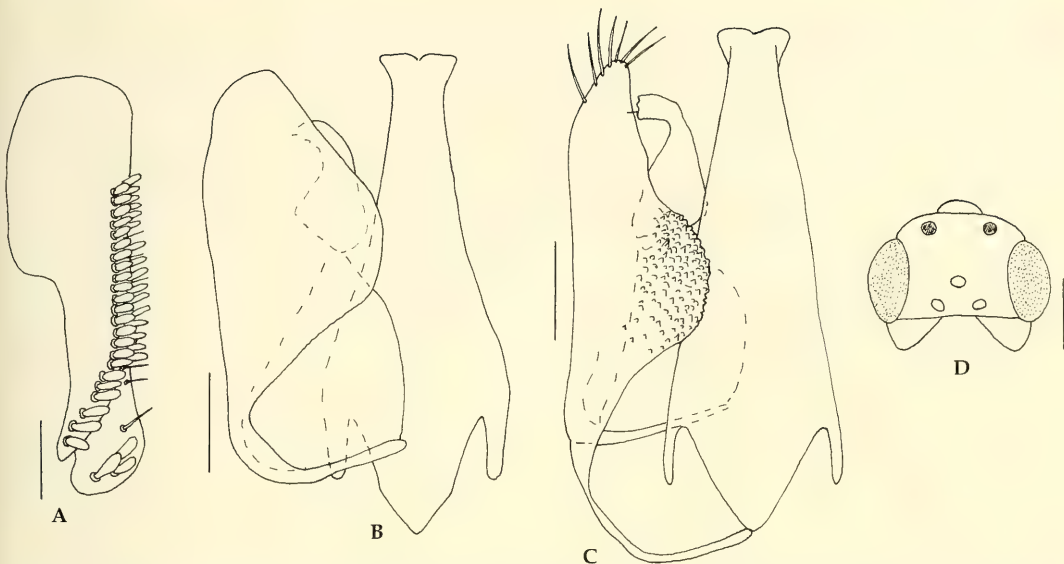


Fig. 2. **A.** *Anteon searsi*, spec. nov., ♀ paratype, tarsomere 5 of protarsus in ventral view. **B-C.** Male genital armatures (right half removed). **B.** *Anteon searsi*, spec. nov., ♂ paratype. **C.** *Anteon ellisense* Olmi, specimen from Australia, 3.4 Km S Port Douglas. **D.** Head (in dorsal view) of male of *Dryinus gulfensis* Olmi from Papua New Guinea, 07°44'S 146°30'E. Scale bars: A: 0.07 mm, B: 0.05 mm, C: 0.06 mm, D: 0.29 mm.

expansion provided of many papillae (Fig. 2C) in *A. ellisense*; with no expansions provided of papillae in *A. destructor* and *A. searsi* (Fig. 2A; figs 353, 354 in Olmi 1984).

Subfamily Dryininae

Dryinus gulfensis Olmi

Figs 2D, 3A, 3B

Dryinus gulfensis Olmi, 1998, was described from Papua New Guinea, Gulf Prov., Ivimka Research Station, Lakekamu Basin, 07°07'S 146°08'E. One only female of this rare species was known. However, in recent years, I examined a small series composed of both sexes, so that I can give the following description of the male.

Material examined. 1♂, Papua New Guinea, Gulf Prov., Ivimka Research Station, Lakekamu Basin, 07°44'S 146°30'E, 120 m, 10.XI.1999, S.L. Heydon, T. A. Sears, N. Schiff fogging (DA); 1♀, Papua New Guinea, Gulf Prov., Ivimka Research Station, Lakekamu Basin, 07°44'S 146°30'E, 120 m, 26-30.III.2000, Malaise trap, Sears and binatung brigade (DA).

Description

♂. Fully winged; length 3.00 mm.

Head black, with mandibles, clypeus and anterior third of the face testaceous; antennae brown, with segments 1-2 yellow-testaceous; prothorax brown, with posterior tubercles and lateral margins near coxae testaceous; rest of mesosoma black; gaster brown; legs completely yellow-testaceous.

Antennae filiform, very slender and long, slightly shorter than body (44:48); antennal segments in the following proportions: 7:5:16:11:13:12:11:10:9:10; head convex, dull, granulated; occiput very concave, smooth, without sculpture except for a granulated stripe near the occipital carina; frontal line complete; occipital carina complete, hardly evident on the temples and laterally reaching the eyes; POL=4.5; OL=2.5; OOL=3; OPL=1; TL=6; major diameter of the posterior ocelli: 3; temples very long and almost pointed, shorter than eyes (6:12 in dorsal view) (Fig. 2D); clypeus smooth, without a median longitudinal keel; mandibles with three teeth progressing larger from anterior one to posterior (Fig. 3A); scutum dull, completely granulated; notauli incomplete, reaching approximately 0.70 length of scutum; scutellum shiny, with anterior half granulated and posterior half without sculpture; metanotum shiny, smooth, without sculpture; propodeum reticulate rugose, with a transverse keel between dorsal and posterior surface; on the

posterior surface of propodeum the areolae are larger than on the dorsal surface.

Forewing and hind wing hyaline, without a dark transverse band; distal part of stigmal vein longer than proximal part (14:9.5); marginal cell open.

Tibial spurs 1, 1, 2.

Parameres (Fig. 3B) with an inner proximal branch showing a mosaic drawing, because this branch is covered with rounded papillae.

Remarks. Because of the extraordinary length of the temples (Fig. 2D) the male of *Dryinus gulfensis* is different from all known males of Dryininae, so that it is easily recognizable. The head in fact is similar to that of *Bocchopsis* (Apodryininae); for this reason, at first sight this male seems to be an apodryinine; however, the genitalia are completely different. A further extraordinary character of this male is the branch covered of papillae present on the parameres (Fig. 3B); similar branches are characteristic of *Deinodryinus* (Anteoninae) and are not present in Dryininae.

Dryinus gordhi, spec. nov.

Fig. 3C

Types. Holotype: ♀, Australia, Queensland, Capalaba, 1.IX.1979, G. Gordh & C. Dahms coll. (TL).

Description

♀. Fully winged; length 5.00 mm.

Head black, with sides of clypeus and mandibles testaceous; antennae testaceous; mesosoma black, with sides and posterior collar of pronotum testaceous; gaster brown; legs brown, with tarsi testaceous, except for 5th segment of mid and hind tarsi brown.

Antennae clavate; antennal segments in the following proportions: 9:6:42:22:17:10:8:6.5:5.5:8.5; rhinaria present on the antennal segments 5-10; head slightly excavated, dull, strongly punctate, without sculpture among the punctures; frons sculptured by tracks of many irregular keels; frontal line complete; occipital carina incomplete, only present behind and on the sides of the posterior ocelli; occiput smooth, shiny, hairy, punctate and without sculpture among the punctures; POL=4; OL=3; OOL=11; OPL=1; TL=6; major diameter of the posterior ocelli: 2; pronotum smooth, shiny, punctate, without sculpture among the punctures; pronotum humped, crossed by two transverse deep furrows; pronotum with posterior collar long, punctate, densely hairy, and anterior collar very short; pronotal tubercles not reaching the tegulae; scutum dull, reticulate rugose;

notauli incomplete, reaching approximately 0.70 length of scutum; scutellum smooth, shiny, hairy, punctate and without sculpture among the punctures; metanotum rugose, dull; propodeum completely reticulate rugose; dorsal surface of propodeum approximately as long as posterior surface; posterior surface of propodeum without longitudinal keels, sculptured by many transverse keels; mesopleura shiny, densely hairy, without sculpture among the punctures; metapleura dull, reticulate rugose.

Forewing with 2 dark transverse bands; distal part of stigmal vein longer than proximal part (16:6).

Protarsus with the following proportions of tarsomeres: 24:3:8:20:31; enlarged claw (Fig. 3C) with a large subdistal tooth and a row of 13 lamellae; tarsomere 5 of protarsus (Fig. 3C) with 2 rows of 15+24 lamellae and with distal apex provided of a group of at least 17 lamellae; tibial spurs 1, 1, 2.

♀ unknown.

Remarks. The species is named after one of the collectors of the holotype, Dr. Gordon Gordh. *Dryinus gordhi* resembles *D. swartensis* Olmi, 1990. From this species it may be distinguished by the sculpture of temples and occiput (sculptured by short and longitudinal keels in *D. swartensis*; smooth and not sculptured by keels in *D. gordhi*) and the sculpture of the scutellum and metanotum (reticulate rugose in *D. swartensis*; punctate, without sculpture among the punctures, not reticulate rugose in *D. gordhi*).

Pseudodryinus papuensis, spec. nov.

Fig. 3D

Types. Holotype: ♀, Papua New Guinea, Morobe Prov., Tekadu, 07°38'S 146°34'E, 400 m, 7.II.2000, T. A. Sears & binatung brigade, Malaise trap (DA).

Description

♀. Fully winged; length 4.50 mm.

Head black, with ventral side, mandibles, clypeus and the frontal region between and on the sides of the antennal toruli testaceous; antennae brown, with segments 1-2 testaceous; mesosoma black, with lateral and posterior margins of pronotum testaceous; gaster brown; legs testaceous, with clubs of femora and distal extremities of fore tibiae darkened.

Antennae clavate; antennal segments in the following proportions: 10:7:60:43:27:18:9:7:6.5:9; rhinaria present on antennal segments 6-10; antennal segments 8-10 with a few long setae among shorter

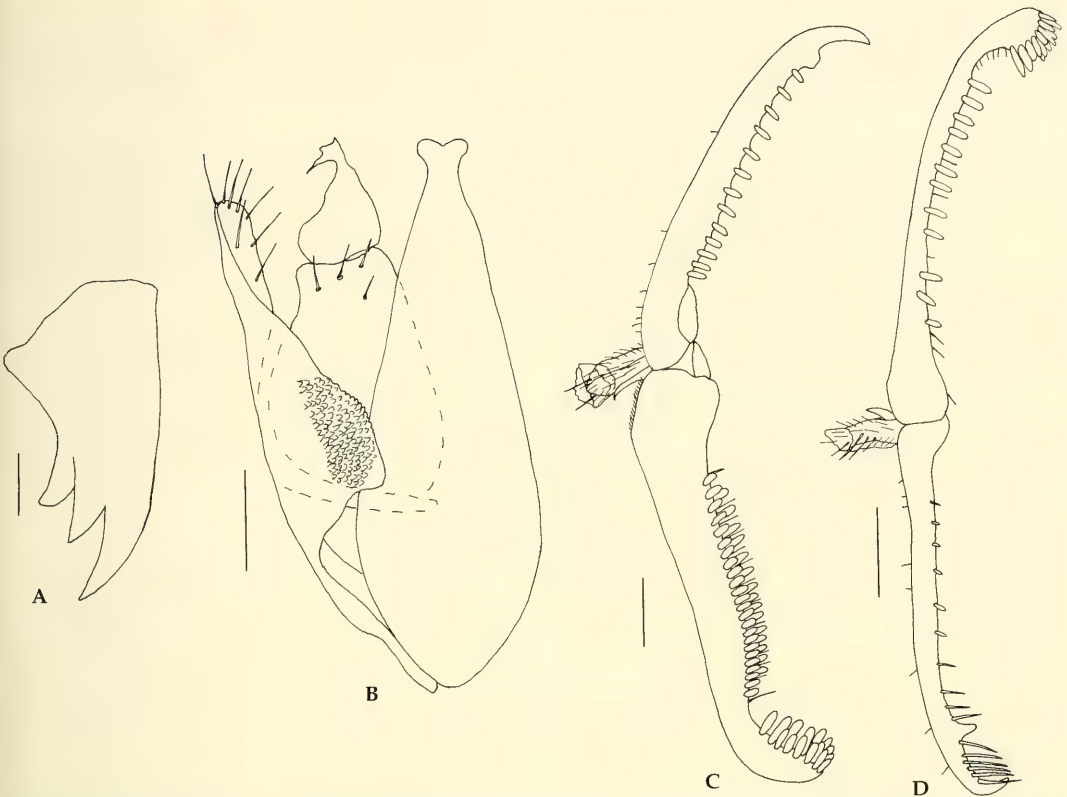


Fig. 3. A-B. Male of *Dryinus gulfensis* Olmi from Papua New Guinea, 07°44'S 146°30'E. A. Mandibles. B. Genital armature (right half removed). C-D. Chelae of holotypes. C. *Dryinus gordhi*, spec. nov. D. *Pseudodryinus papuensis*, spec. nov. Scale bars: A: 0.05 mm, B: 0.04 mm, C: 0.11 mm, D: 0.25 mm.

hairs; antennal segment 10 with a tuft of very long distal setae; head slightly convex, shiny, punctate, without sculpture among the punctures; frontal line complete; occipital carina complete; POL=4; OL=2; OOL=10; OPL=2; TL=5; major diameter of the posterior ocelli 4.5; pronotum shiny, smooth, humped, crossed by a strong anterior transverse impression and a little deep posterior transverse furrow; pronotum punctate, without sculpture among the punctures, with anterior collar long and posterior collar very short; pronotal tubercles reaching the tegulae; scutum, scutellum and metanotum shiny, punctate, without sculpture among the punctures; notauli complete, posteriorly separated; minimum distance between the notauli shorter than breadth of the posterior ocelli (3:4.5); propodeum with a transversal keel between dorsal and posterior surface; dorsal surface of propodeum approximately as long as posterior surface, with two median subparallel longitudinal keels; the regions on the sides of the above keels are smooth, punctate, without sculpture among the punctures; posterior surface of

propodeum with two complete longitudinal keels, with median area smooth, shiny, without sculpture and with lateral areas shiny, sculptured by irregular keels limiting large areolae.

Forewing hyaline, without dark transverse bands; distal part of stigmal vein longer than proximal part (38:13).

Protarsus with the following proportions of tarsomeres: 18:4:10:36:52; enlarged claw (Fig. 3D) with a large subdistal tooth and a row of 16 lamellae (the most distal lamellae are similar to broad bristles); tarsomere 5 of protarsus (Fig. 3D) with 2 rows of 1+11 lamellae and with distal apex provided of a group of at least 12 lamellae; tibial spurs 1, 1, 2.

♂ unknown.

Remarks. After *Pseudodryinus australis* Olmi, 1998, described from Australia, Queensland, 11°51'S 142°38'E, *P. papuensis* is the second species of *Pseudodryinus* known from the Australian region. From *P. australis* it may be distinguished by the length of

the 1st and 4th tarsomeres of the protarsi (tarsomere 4 of protarsus approximately twice as long as tarsomere 1 in *P. papuensis*; tarsomere 4 of protarsus slightly longer than tarsomere 1 in *P. australis*).

Subfamily Gonatopodinae

Echthrodelpfax guineensis, spec. nov.

Fig. 4A

Types. Holotype: ♀, Papua New Guinea, Morobe Prov., Tekadu, 07°38'S 146°34'E, I.2000, T. A. Sears & binatung brigade (DA).

Description

♀. Fully winged; length 2.50 mm.

Head testaceous-reddish, with mandibles and clypeus testaceous; part of ventral side of the head brown; antennae brown, with segments 1-3 testaceous; prothorax brown, with sides of pronotum and sides of disc of pronotum yellow-testaceous; scutum and epicnemium testaceous-reddish; rest of mesosoma black; gaster brown; legs brown, with tarsi, fore coxae and fore trochanters testaceous.

Antennae clavate; antennal segments in the following proportions: 7:4:11:6:4:4:4:4:6; palpal ratio 6/3; head flat, shiny, slightly granulated; frontal line incomplete, not present on the anterior half of the frons; occipital carina incomplete, only present behind the ocellar triangle and shortly on the sides of the posterior ocelli; POL=1; OL=3; OOL=5; posterior ocelli touching the occipital carina; temples distinct; pronotum crossed by a strong transverse impression, with anterior collar and sides shiny, smooth, without sculpture; disc of pronotum dull, strongly granulated, almost rugose; posterior edges of pronotum rounded, not produced into lobes; scutum shiny, smooth, without sculpture; notauli hardly evident (two tracks of incomplete notauli are hardly visible; they reach approximately 0.40 length of scutum); scutellum with anterior half dull, reticulate rugose, and posterior half shiny, smooth, without sculpture; metanotum shiny, smooth, without sculpture; propodeum with dorsal surface dull and reticulate rugose; posterior surface of propodeum shiny and almost completely smooth and without sculpture; mesopleura dull, reticulate rugose; metapleura partly smooth and without sculpture and partly transversely striate.

Forewing with two dark transverse bands; distal part of stigmal vein longer than proximal part (15:5).

Protarsus with the following proportions of tarsomeres: 12:2.5:3:8:13; enlarged claw (Fig. 4A) with a large subapical tooth and 1 row of 4 lamellae;

tarsomere 5 of protarsus (Fig. 4A) with one row of 7 lamellae and with distal apex provided of a group of approximately 7 lamellae; tibial spurs 1, 0, 1.

♂ unknown.

Remarks. *Echthrodelpfax guineensis* is different from all other known Australian species of *Echthrodelpfax* mainly because its notauli are incomplete and hardly visible, whereas in the other four species the notauli are always complete and distinctly visible.

Gonatopus victoriensis, spec. nov.

Figs 4B, 4D

Types. Holotype: ♀, Australia, Victoria, 30 Km W Hershaw, 1.III.1984, E. R. Oatman coll. (TL).

Description

♀. Apterous; length 3.06 mm.

Head black, with anterior region of frons and mandibles testaceous; clypeus testaceous, with a brown central spot; antennae brown, with segments 1-2 testaceous; mesosoma black; gaster brown-black; legs brown, with junctions and fore tarsi testaceous.

Antennae clavate; antennal segments of the holotype in the following proportions: 6:4.5:12:8:7:7:5:5:4.5:6; maxillary palpi with 6 segments; labial palpi with 3 segments; head very slightly excavated, shiny, smooth, without sculpture, almost completely hairless; frontal line incomplete, only present in the anterior half of the frons; occipital carina absent; temples distinct; POL=2.5; OL=3; OOL=7; pronotum shiny, smooth, crossed by a strong transverse impression; pronotum without sculpture, except for the anterior collar partly granulated; scutum shiny, smooth, without lateral pointed apophyses; scutellum shiny, smooth, inclined; metanotum slightly hollow behind the scutellum, flat, dull, granulated, slightly transversely striate; metathorax + propodeum (Fig. 4B) dull, with anterior surface granulated and sculptured by slight longitudinal striae and with disc and posterior surface slightly transversely striate; mesopleura and metapleura shiny, slightly transversely striate; meso-metapleural suture distinct and complete.

Protarsus with the following proportions of tarsomeres: 11:2.5:2.5:12:18; enlarged claw (Fig. 4D) with a very small subdistal tooth and a row of 3 proximal bristles; tarsomere 5 of protarsus (Fig. 4D) with two rows of 4+13 lamellae situated in the distal half; distal apex of tarsomere 5 with a group of approximately 4 lamellae; tibial spurs 1, 0, 1.

♂ unknown.

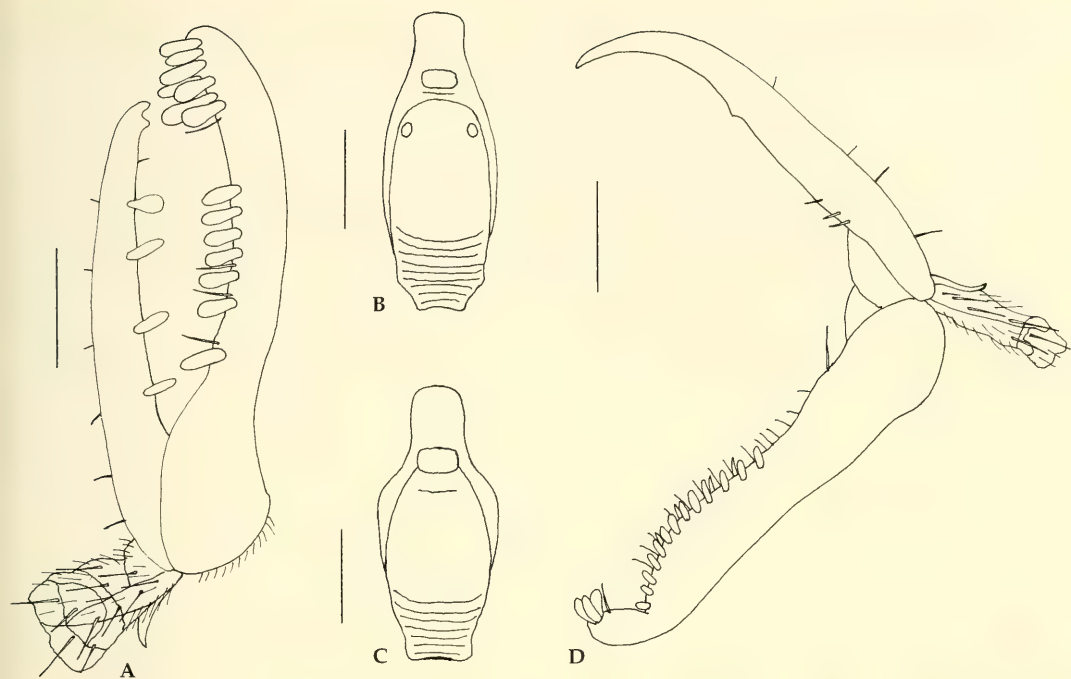


Fig. 4. A,D. Chelae. A. *Echthrodelfax guineensis*, spec. nov., holotype. D. *Gonatopus victoriensis*, spec. nov., holotype. B,C. Scutum, scutellum and metathorax + propodeum. B. *Gonatopus victoriensis*, spec. nov., holotype. C. *Gonatopus dahmsi* Olmi, holotype. Scale bars: A: 0.06 mm, B: 0.28 mm, C: 0.25 mm, D: 0.10 mm.

Remarks. *Gonatopus victoriensis* belongs to the *Gonatopus optabilis* group and resembles *G. dahmsi* Olmi, 2001. From this species it may be distinguished by the shape of the enlarged claw (with the subapical tooth situated very close to the distal apex in *G. dahmsi* (Fig. 1 in Olmi 2001); with the subapical tooth farther from the distal apex in *G. victoriensis* (Fig. 4D), the shape of metathorax + propodeum (broader in *G. dahmsi* (Fig. 4C); more slender in *G. victoriensis* (Fig. 4B) and the length of the frontal line (frontal line complete in *G. dahmsi*; incomplete and only present on the anterior half of the frons in *G. victoriensis*).

Acknowledgments

For the loan of material many thanks to Dr. Lynn S. Kimsey (Davis, California), Dr. Scott R. Shaw (Laramie, Wyoming) and Dr. Doug Yanega (Riverside, California).

References

- Guglielmino, A. & M. Olmi 1997. A Host-Parasite catalog of world Dryinidae (Hymenoptera: Chrysidoidea). – Contrib. Ent. Internat. 2(2): 165-298
- Olmi, M. 1984. A revision of the Dryinidae (Hymenoptera). – Mem. Amer. Ent. Inst. 37: XXXI + 1913 pp.
- 1986. New species and genera of Dryinidae (Hymenoptera Chrysidoidea). – Frustula entomol. (1986)(N.S.) VII-VIII(XX-XXI): 63-105
- 1987a. New species of Dryinidae (Hymenoptera, Chrysidoidea). – Fragm. Entomol. 19: 371-456
- 1987b. New species of Dryinidae, with description of a new subfamily from Florida and a new species from Dominica amber (Hymenoptera, Chrysidoidea). – Boll. Mus. Reg. Sci. Nat. Torino 5: 211-238
- 1987c. Descrizione di nuove specie di Dryinidae (Hymenoptera Chrysidoidea). – Boll. Zool. Agr. Bachic. (Ser. II) 19: 31-70
- 1990. Supplement to the revision of the world Dryinidae (Hymenoptera Chrysidoidea). – Frustula entomol. (N. S.) XII(XXV): 109-395 (1989)
- 1992a. New species of Dryinidae (Hymenoptera). – Acta Zool. Hung. 38: 281-292
- 1992b. Descriptions of new taxa of Dryinidae (Hymenoptera Chrysidoidea). – Frustula entomol. (N.S.) XV(XXVIII): 19-62

- 1993. A new generic classification for Thaumato-dryininae, Dryininae and Gonatopodinae, with descriptions of new species (Hymenoptera Dryinidae). – Boll. Zool. Agr. Bachic. (Ser. II) **25**: 57-89
- 1994. The Dryinidae and Embolemidae (Hymenoptera: Chrysidoidea) of Fennoscandia and Denmark. – Fauna Ent. Scand. **30**: 1-100
- 1998a. Taxonomic remarks on Australian Dryinidae with description of new species (Insecta, Hymenoptera, Chrysidoidea). – Spixiana **21**(1): 53-58
- 1998b. New Embolemidae and Dryinidae (Hymenoptera Chrysidoidea). – Frustula entomol. (N. S.) **XX**(XXXIII): 30-118 (1997)
- 1999a. Hymenoptera Dryinidae – Embolemidae. – Fauna d'Italia **XXXVII**: 425 pp., Bologna
- 1999b. Remarks on new Neotropical and Australian Dryinidae, with a new synonymy (Hymenoptera Chrysidoidea). – Redia **82**: 1-15
- 2001. Two new species of *Gonatopus* from Australia (Hym., Dryinidae). – Entomol. Monthly Mag. **137**: 49-52
- 2003. A contribution to the knowledge of Dryinidae (Hymenoptera Chrysidoidea). – Frustula entomol. (N. S.) **XXIV**(XXXVII): 21-49 (2001)
- 2004. New species of Dryinidae from Colombia (Insecta, Hymenoptera, Chrysidoidea). – Spixiana **27**: 147-154
- , E. G. Virla F. & Fernandez. 2000. Las Avispas Dryinidae de la Región Neotropical (Hymenoptera: Chrysidoidea). – Biota Colombiana **1**(2): 141-163